MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017 SESSION

TSN 2201 / TCE2321 – COMPUTER NETWORKS

(All Sections / Groups)

27 FEBRUARY 2017
2:30 p.m – 4:30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 6 printed pages including cover page with 5 questions only.

2. Attempt **FIVE** out of **FIVE** questions. All questions carry equal marks and the distribution of marks for each question is given.

3. Please write all your answer in the Answer Booklet provided.

Question 1 [10 marks]

(a) Give two differences between IEEE 802 Workgroup Standards as compared to IETF Standard.

[2 marks]

(b) What is the minimum number of copper wires required to inter-connect two independent circuits together so that a signal can be sent? Explain why?

[3 marks]

(c) The wires inside a UTP cable (Unshielded Twisted Pair) are twisted together in pair. Give one reason why the wires are twisted together.

[2 marks]

(d) The maximum channel capacity is 30,000 bps. The cignal strength is 3 watt and the noise level is 0.15 watt. What is the available bandwidth for the channel?

[3 marks]

Question 2 [10 marks]

(a) Give one difference between a Root Port and a Designated Port in the Spanning Tree Protocol.

[1 mark]

(b) Give one difference between a Non-Designated Port and a Designated Port in the Spanning Tree Protocol.

[1 mark]

(c) Give one similarity between a Non-Designated Port and a Designated Port in the Spanning Tree Protocol.

[1 mark]

(d) Give two differences between a Root Bridge and a Non-Root Bridge.

[2 marks]

(e) What is the role of the Max-Age timer in the Spanning Tree Protocol?

[2 marks]

(f) A Spanning Tree consists of Bridge A till D. These bridges are configured with the following configuration.

Bridge No	Priority	MAC addresses
Bridge A	2048	0011-0000-0011
Bridge B	1024	0022-0000-0022
Bridge C	2048	0033-0000-0033
Bridge D	4096	0011-0000-0001

Continue...

i) Which bridge will become the root bridge?

[1 mark]

ii) If the root bridge failed, which bridge will become the root assuming all the remaining bridges are still connected?

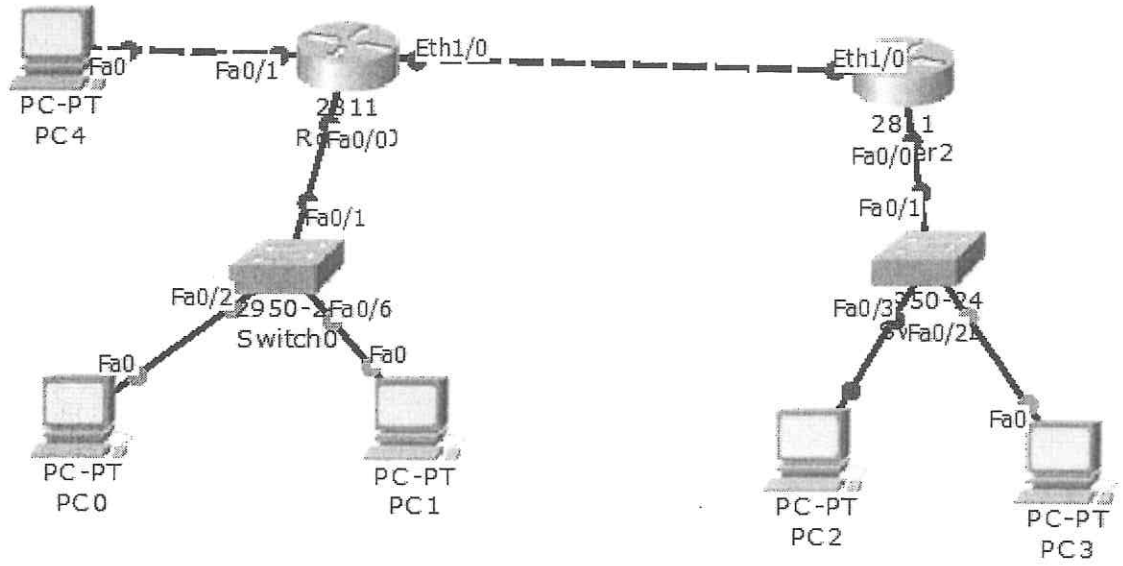
[1 mark]

iii) The root bridge has been recovered and there are now four bridges in the network. The network engineer has configured the bridge priority in Bridge A, B, C and D to zero. Which bridge will become the root bridge?

[1 mark]

3. Question 3 [10 marks]

Consider the network below



The network mask is /24.

Devices/Interface	IP address	Left Router Static route Configuration
PC0	200.1.X.Y /24	ip route-static 200.1.4.0 24 200.1.8.2
PC1	200.1.X.Z /24	
PC2	200.1.4.1 /24	
PC3	200.1.4.2 /24	
PC4	200.1.A.B /24	
Left Router Eth1/0	200.1.8.1 /24	
Right Router Eth1/0	200.1.8.2 /24	

Continue...

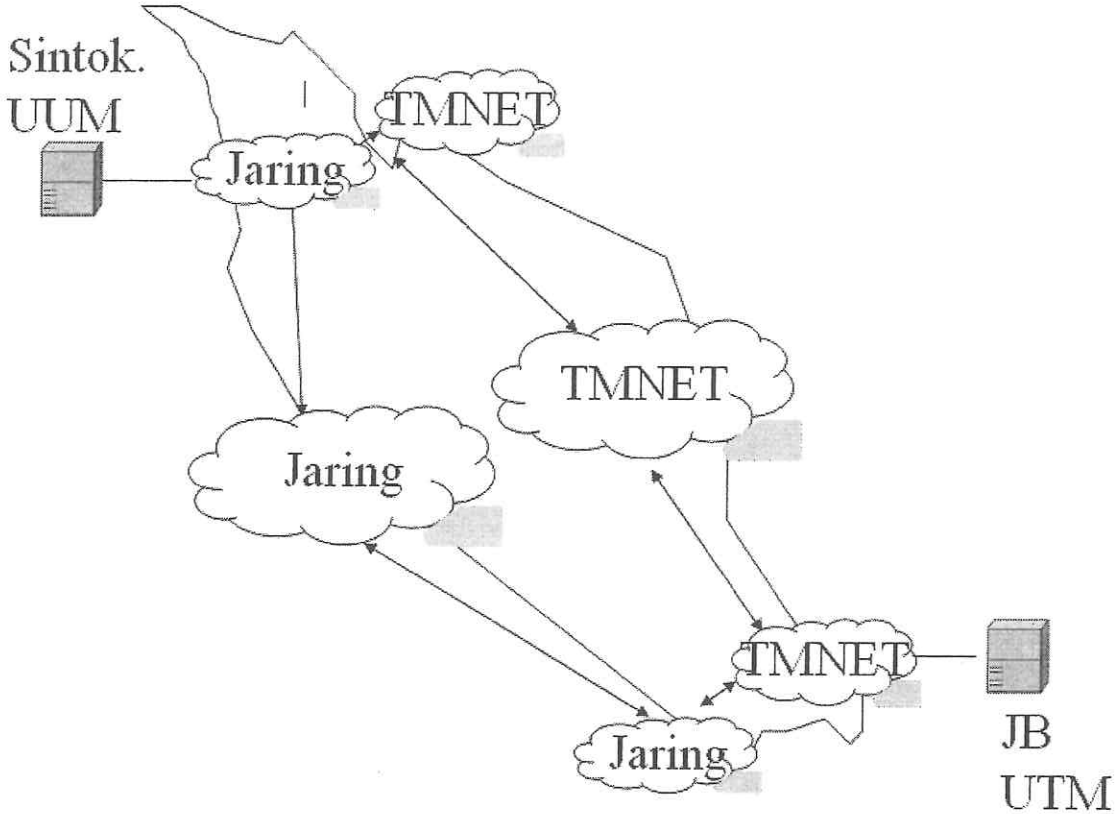
(a) The company would like to run static route on RightRouter and to prevent unnecessary forwarding of IP traffic, no default route is allowed. However, the engineer by the name of "CON SULTAN" charges USD1000 for each line of ip route-static command. The company has a limited budget of USD1000. You inform the engineer to type-in the following in RightRouter.
"ip route-static 200.1.L.M N 200.1.8.1"
What is the value of L, M and N?

[3 marks]

(b) What is the possible values for A, B, X and Y in the above network? The answer must be consistent with question (a).

[2 marks]

(c) Given the network below.

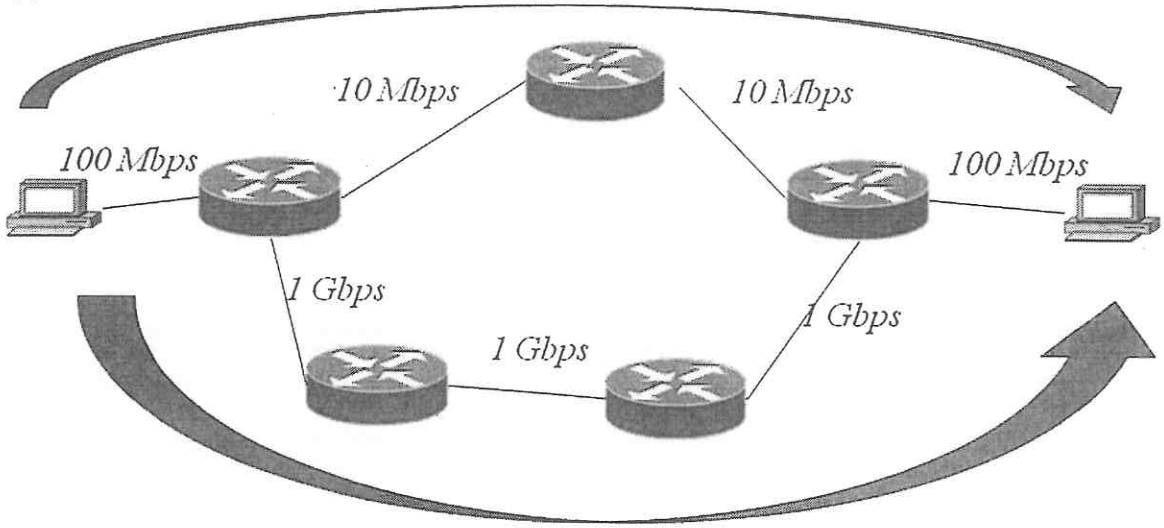


A UTM user would like to send a packet to UUM Server. UTM is connected to TMNET service provider while UUM is connected to Jaring Service Provider. Which route will be used to send the packet from UTM to UUM and why?

[3 marks]

Continue...

(d) Given the network below.



Your network is preconfigured with OSPF and the packet transmission between the two PCs will go through the bottom routers along the 1 Gbps link. What you need to configure on the routers so that the packet transmissions will prefer to go through the 10Mbps links instead? Assume you are not allowed to change the interface type or shutdown any port.

[2 marks]

Question 4 [10 marks]

(a) Give one difference between IGMPv1 and IGMPv2?

[1 mark]

(b) Give one difference between IGMPv3 and IGMPv2?

[1 mark]

(c) What is the role of Rendezvous Point in PIM-Sparse Mode from both Multicast Sender/Receiver Point perspectives?

[2 marks]

(d) Why Rendezvous Point is not required in PIM-SM if IGMPv3 is deployed?

[2 marks]

(e) In IP communication, when a host send out an IP packet, it may receive an ICMP Error message due to some network errors. Give two possible ICMP Error Messages. E.g. ICMP Time Exceeded.

[4 marks]

Continue...

Question 5 [10 marks]

(a) DNS is the second most important service in Internet after IP routing. Explain why?

[2 marks]

(b) Give one difference between SNMPv1 and SNMP2vc.

[2 marks]

(c) Why asymmetry encryption is required to against repudiation?

[2 marks]

(d) Give one example of Congestion Avoidance Strategy and one example of Congestion Management Strategy.

[2 marks]

(e) Give one difference between these two network queuing scheduling algorithms: WRR (Weighted Round Robin) and DRR (Deficit Round Robin).

[2 marks]

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